aeromet

Rutledge

C-b

SEASONAL PROGRESS REPORT NO. 1

for the period

December, January and February 1977-1978

to

ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 Lincoln St., Suite 900
Denver, CO 80203

Contract No. 68-01-3982

August 15, 1978

aeromet inc.

P.O. BOX 45447
TULSA, OKLAHOMA 74145

9535 E. 47th PLACE
918-664-4547

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by

Aeromet, Inc.
P. O. Box 45447
Tulsa, OK 74145

1.0 INTRODUCTION

Low level temperature and wind data were collected for the winter season of December, January and February 1977-1978 at the Colorado C-b Tract 25 miles west of Rio Blanco, Colorado; Hanksville, Utah; and Rock Springs, Wyoming. The data were collected using 30 gm helium filled pilot balloons with a temperature sonde attached and a TSR-2 receiver/recorder. The pibals were tracked by single theodolites at Hanksville and Rock Springs and by a double theodolite at the Colorado C-b Tract. Aeromet was not involved in the reduction of the double theodolite data other than reducing the data as two independent theodolites. The observations were scheduled 1/2 hour after sunrise and at 1400L, twice a day, every other day. The C-b Tract is not manned weekends, therefore, scheduled launches that fell on Saturday were released the preceeding Friday; Sunday launches were released the following Monday.

The pilot balloon had an initial ascent rate of 500 ft/min and was tracked by a theodolite for 12 minutes with the azimuth and elevation angles recorded every 30 seconds on cassette tape recorders. The tapes were transcribed to pilot balloon forms after completion of the launch.

The temperature sonde operated at 403 MHz and the signal was received by a ground plane antenna at least 16 ft AGL which was attached to the Aeromet, Inc. TSR-2 receiver/recorder. The TSR-2 receiver has a built-in Rustrak strip chart recorder that recorded temperature within the range from -50°C to +50°C. A baseline temperature calibration was performed with each T-Sonde by the adjustment of the recorded temperature to match the thermometer measured temperature next to the transmitting sonde. Once the calibration check was finished, the balloon was released with the sonde attached and the temperature was recorded for at least 20 minutes. At the completion of each observation the data were mailed to Aeromet, Inc.

2.0 DATA SUMMARY

2.1 Mixing Layer Height

The average mixing layer height was computed for the morning and afternoon based on the morning and 1400L temperature soundings. The balloon release 1/2 hour after sunrise is near enough to the minimum temperature to assume the correctness of the calculated mixing layer heights. The afternoon balloon release is generally not at the time of maximum heating and the user of the mixing layer height data must be aware that minor changes in the calculated values can be expected. Without equipping the field sites with minimum/maximum thermometers, the extrapolation of the afternoon data cannot be justified in establishing a data base for statistical analysis. The approximation of the afternoon maximum temperature would be a "calculated guess" for there are: 1) local effects which are to be determined and would be filtered out with extrapolation, 2) mountain effects which alter the lower 1500m (e.g., downslope effects), and 3) meteorological effects which can alter the expected change in the sounding (e.g., advection, moisture, etc.).

It is felt that to better define the mixing layer height a variety of "heat island" effects should be viewed. The rigourous method would be to define 15 "heat island" effects ranging from 0 to 14°C and let the user decide which would best serve his needs. However, for this analysis 0°, +5° and +10° "heat island" effects were calculated.

The average mixing layer height values calculated with the 0°, +5° and +10° "heat island" effects for each of the three field sites for the winter season of December, January and February 1977-1978 are summarized in the table labelled Mixing Layer Height Summary. The percent of occurrence of the average height within 250m increments above ground level is given. The total number of soundings included in the sample populations are also listed in the table.

2.2 Stability and Inversion Classification

The temperature data are processed to produce for each site a seasonal summary of inversion layers and lapse rates within the inversions and from the inversion base to the surface by means of the Holzworth classification scheme for inversions (Holzworth, G. C., 1974: "Climatological Data on Atmospheric Stability in the United States" paper presented at the American Meteorological Society Symposium on Atmospheric Diffusion and Air Pollution, September 9-13, 1974, Santa Barbara, California).

The temperature and wind data are processed together to produce for each site a seasonal average bivariate frequency distribution of wind direction versus wind speed represented in the 500m layer adjacent to the ground. The distribution is presented by the six Pasquill stability classes (A-F) and a summary independent of stability. If the $\Delta T/100m$ criterion is met but the wind speed criterion is not met, then the wind data are checked against the

STABILITY CLASS	ΔT (°C/100m)	WIND SPEED (m s^{-1})
A	<-1.9	≤2
B	-1.9 - -1.7	≤5
C	-1.7 - -1.5	≤6
D	-1.5 - -0.5	ALL SPEEDS
E	-0.5 - 1.5	≤5
F	>1.5	≤3

criterion for the next stability class, always cascading to the D stability class. Once the wind speed criterion is met, the data are classified under the new stability class even though now the lapse rate exceeds the class criterion. For example, if the $\Delta T/100m$ value is 1.7 and the wind speed is 7 m s^{-1}, the lapse rate criterion is met for the stability class F, however, the wind speed criterion is exceeded. The wind speed is greater than the 5 m s^{-1} maximum limit for class E but falls within the criterion of class D, which includes all wind speeds. As a result, the observational data with a ΔT value

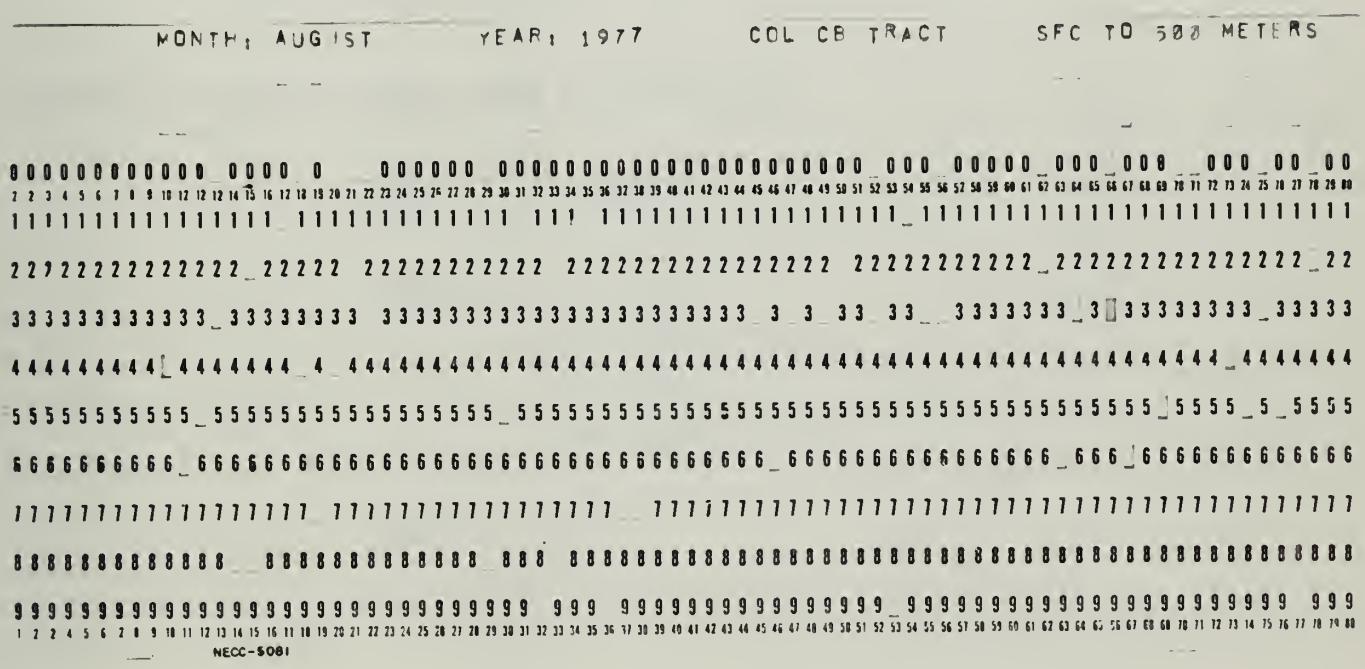
of 1.7°C/100m and a wind speed value of 7 m s^{-1} are classified under stability class D, not class F.

The temperature and wind data were edited to remove data felt to cause anomalous results in the stability and inversion classification schemes. Only the soundings listed prior to the table classifying the inversions in the Monthly Progress Reports were used in the calculations. The temperature and wind data were not edited after completion of the monthly reports.

The data are punched on computer cards in a format compatible with the STAR PROGRAM of the National Climatic Center, NOAA, U.S. Department of Commerce.

2.3 Punched Output

The punched output from the bivariate frequency distribution calculations include a header card as illustrated below, and the punched distribution data



for each wind direction under each stability class in agreement with the "STAR" output. The stability classes are number coded as follows:

STABILITY CLASS	NUMBER CODE
A	1
B	2
C	3
D	4
E	5
F	6
Independent of Stability	7

The station I.D. numbers are as follows:

STATION	I.D. NUMBER
Colorado C-b Tract	1
Hanksville, Utah	2
Rock Springs, Wyoming	4

The month and season number codes are as follows:

MONTH	1-12
SEASON	13 = DJF
	14 = MAM
	15 = JJA
	16 = SON
ANNUAL	17

MIXING LAYER HEIGHT SUMMARY

Colorado C-b Tract

Season: December, January, February 1977-1978

MIXING LAYER HEIGHT (Height in meters)	PERCENT OF OCCURRENCE					
	MORNING			AFTERNOON		
	0°	+5°	+10°	0°	+5°	+10°
Surface	25.0	0.0	0.0	11.8	0.0	0.0
1 - 250m	22.2	2.9	0.0	26.5	3.0	0.0
251 - 500m	22.2	5.9	0.0	17.6	0.0	0.0
501 - 750m	16.7	5.9	2.9	17.6	3.0	0.0
751 - 1000m	2.8	14.7	0.0	2.9	6.1	0.0
1001 - 1250m	0.0	5.9	0.0	5.9	6.1	0.0
1251 - 1500m	0.0	0.0	2.9	5.9	6.1	0.0
1501 - 1750m	0.0	14.7	5.9	8.8	12.1	0.0
1751 - 2000m	5.6	11.8	8.8	2.9	9.1	3.2
> 2000m	2.8	17.6	26.5	0.0	39.4	48.4
None defined	2.8	20.6	52.9	0.0	15.2	48.4
TOTAL NUMBER	36	34	34	34	33	31

MIXING LAYER HEIGHT SUMMARY

Hanksville, Utah

Season: December, January, February 1977-1978

MIXING LAYER HEIGHT (Height in meters)	PERCENT OF OCCURRENCE					
	MORNING			AFTERNOON		
	0°	+5°	+10°	0°	+5°	+10°
Surface	33.3	0.0	0.0	12.2	0.0	0.0
1 - 250m	40.5	25.5	5.2	4.9	0.0	0.0
251 - 500m	16.7	23.1	10.3	31.7	2.5	0.0
501 - 750m	7.1	10.3	7.7	26.8	12.5	2.6
751 - 1000m	0.0	15.4	10.3	12.2	20.0	5.3
1001 - 1250m	0.0	0.0	12.8	0.0	12.5	7.9
1251 - 1500m	0.0	10.3	7.7	2.4	7.5	7.9
1501 - 1750m	0.0	2.6	5.1	0.0	7.5	7.9
1751 - 2000m	0.0	2.6	5.1	4.9	5.0	7.9
> 2000m	2.4	7.7	17.9	2.4	20.0	13.2
None defined	0.0	2.6	17.9	2.4	12.5	47.4
TOTAL NUMBER	42	39	39	41	40	38

MIXING LAYER HEIGHT SUMMARY

Rock Springs, Wyoming

Season: December, January, February 1977-1978

MIXING LAYER HEIGHT (Height in meters)	PERCENT OF OCCURRENCE					
	MORNING			AFTERNOON		
	0°	+5°	+10°	0°	+5°	+10°
Surface	48.7	0.0	0.0	46.4	0.0	0.0
1 - 250m	41.0	18.9	2.7	24.4	7.4	0.0
251 - 500m	7.7	21.6	13.5	19.5	2.4	0.0
501 - 750m	0.0	24.3	8.1	2.4	22.0	0.0
751 - 1000m	2.6	16.2	10.8	2.4	17.1	10.0
1001 - 1250m	0.0	2.7	8.1	0.0	14.6	5.0
1251 - 1500m	0.0	2.7	16.2	2.4	4.9	2.5
1501 - 1750m	0.0	10.8	13.5	2.4	4.9	10.0
1751 - 2000m	0.0	0.0	2.7	0.0	4.9	17.5
> 2000m	0.0	2.7	16.2	0.0	19.5	37.5
None defined	0.0	0.0	8.1	0.0	2.4	17.5
TOTAL NUMBER	39	37	37	41	41	40

MONTH: DEC JAN FEB YEAR: 77-78 COL CR TRACT ELEV 2088 METERS

HOLZWORTH'S CLASSIFICATION SCHEME FOR INVERSIONS
MODIFIED TO SHOW TOTAL NUMBER INSTEAD OF PERCENT

INVERSION BASE HEIGHT (M)

THICKNESS (METERS)	SFC	1- 100	101- 250	251- 500	501- 750	751- 1000	1001- 1500	1501- 2000	2001- 2500	2501- 3000	TOTAL
1 - 100	3	1	4	8	5	6	3	0	0	0	30
101 - 250	0	2	0	0	4	2	1	0	0	0	13
251 - 500	1	1	1	1	1	0	1	0	0	0	6
501 - 750	1	0	0	0	0	0	0	0	0	0	1
751 - 1000	0	0	0	0	0	0	0	0	0	0	0
1001 - 1500	0	0	0	0	0	0	0	0	0	0	0
> 1500	0	0	0	0	0	0	0	0	0	0	0
INV TOTAL	5	4	5	9	10	8	5	0	0	0	50
DT/DZ 5		1	0	0	0	0	0	0	0	0	1
FROM INV 4		0	0	1	1	0	1	0	0	0	3
BASE 3		0	2	6	8	8	4	0	0	0	28
TO 2		0	1	2	1	0	0	0	0	0	4
SFC 1		3	2	0	0	0	0	0	0	0	5
NO INV TOT		18	18	18	18	18	18				
DT/DZ FOR 5		1	0	1	0	0	0				
SAME 4		3	8	6	5	3	4				
LAYERS 3		7	9	10	13	15	14				
AS INV 2		2	1	1	0	0	0				
BASE 1		5	0	0	0	0	0				

DT/DZ (DEG C)/100M
5= 0.00 TO -0.40
4=-0.41 TO -0.80
3=-0.81 TO -1.20
2=-1.21 TO -1.60
1=<-1.60

MONTH: DEC JAN FEB YEAR: 77-78 CHL CB TRACT SEC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE A STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 6 SOUNDINGS FROM A SAMPLE OF 74 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 COL CR TRACT SEC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE B STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 6 SOUNDINGS FROM A SAMPLE OF 74 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 COL CO TRACT SEC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE C STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 5 SOUNDINGS FROM A SAMPLE OF 74 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 COL CR TRACT SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.03	0.0	0.0	0.0	0.0	0.0	2.1	0.03
NNE	0.02	0.0	0.0	0.0	0.0	0.0	1.5	0.02
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.03	0.0	0.0	0.0	0.0	0.0	2.6	0.03
SSE	0.0	0.0	0.02	0.0	0.0	0.0	7.9	0.02
S	0.0	0.02	0.02	0.0	0.0	0.0	6.2	0.03
SSW	0.05	0.09	0.19	0.05	0.0	0.0	6.5	0.38
SW	0.02	0.05	0.07	0.0	0.0	0.0	6.0	0.14
WSW	0.02	0.09	0.09	0.0	0.0	0.0	5.4	0.19
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.02	0.03	0.0	0.0	0.0	7.6	0.05
NW	0.02	0.0	0.0	0.0	0.0	0.0	2.1	0.02
NNW	0.03	0.05	0.0	0.0	0.0	0.0	3.3	0.09
AVG SPEED	1.9	4.6	7.5	11.9	0.0	0.0		0.0
TOTAL	0.22	0.31	0.41	0.05	0.0	0.0		1.00

RELATIVE FREQUENCY OF OCCURRENCE OF THE D STABILITY CLASS IS 0.85

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 6 SOUNDINGS FROM A SAMPLE OF 74 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 COL CR TRACT SEC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-15	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.10	0.0	0.0	0.0	0.0	3.9	0.10
SSW	0.10	0.30	0.0	0.0	0.0	0.0	3.9	0.40
SW	0.10	0.0	0.0	0.0	0.0	0.0	2.2	0.10
WSW	0.30	0.0	0.0	0.0	0.0	0.0	2.3	0.30
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.10	0.0	0.0	0.0	0.0	5.0	0.10
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	2.4	4.3	0.0	0.0	0.0	0.0		0.0
TOTAL	0.50	0.50	0.0	0.0	0.0	0.0		1.00

RELATIVE FREQUENCY OF OCCURRENCE OF THE E STABILITY CLASS IS 0.15

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 6 SOUNDINGS FROM A SAMPLE OF 74 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 COL CR TRACT SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE F STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 6 SOUNDINGS FROM A SAMPLE OF 74 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 COL CR TRACT SEC 10 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.03	0.0	0.0	0.0	0.0	0.0	2.1	0.03
NNE	0.01	0.0	0.0	0.0	0.0	0.0	1.5	0.01
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.03	0.0	0.0	0.0	0.0	0.0	2.6	0.03
SSE	0.0	0.0	0.01	0.0	0.0	0.0	7.9	0.01
S	0.0	0.03	0.01	0.0	0.0	0.0	5.4	0.04
SSW	0.06	0.12	0.16	0.04	0.0	0.0	6.1	0.38
SW	0.03	0.04	0.06	0.0	0.0	0.0	5.6	0.13
WSW	0.06	0.07	0.07	0.0	0.0	0.0	4.7	0.21
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.03	0.03	0.0	0.0	0.0	7.0	0.06
NW	0.01	0.0	0.0	0.0	0.0	0.0	2.1	0.01
NNW	0.03	0.04	0.0	0.0	0.0	0.0	3.3	0.07
AVG SPEED	2.0	4.5	7.5	11.9	0.0	0.0		0.0
TOTAL	0.26	0.34	0.35	0.04	0.0	0.0		1.00

NORMALIZED FREQUENCY DISTRIBUTION INDEPENDENT OF STABILITY

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 6 SOUNDINGS FROM A SAMPLE OF 74 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 HANKSVILLE ELEV 1315 METERS

HOLZWORTH'S CLASSIFICATION SCHEME FOR INVERSIONS
MODIFIED TO SHOW TOTAL NUMBER INSTEAD OF PERCENT

THICKNESS (METERS)	SFC	1- 100	101- 250	251- 500	501- 750	751- 1000	1000- 1500	1501- 2000	2001- 2500	2501- 3000	TOTAL
1 - 100	2	3	3	6	4	3	1	0	0	0	22
101 - 250	0	1	1	4	0	1	1	0	0	0	12
251 - 500	2	3	6	1	3	0	0	0	0	0	15
501 - 750	2	0	0	5	1	2	1	0	0	0	11
751 - 1000	1	1	3	0	1	0	0	0	0	0	6
1001 - 1500	4	1	2	1	0	0	0	0	0	0	8
> 1500	1	0	0	0	0	0	0	0	0	0	1
INV TOTAL	16	9	15	17	9	6	3	0	0	0	75
DT/DZ 5		1	0	0	0	0	0	0	0	0	1
FROM INV 4		2	1	0	1	0	0	0	0	0	4
BASE 3		0	5	6	8	6	3	0	0	0	28
TO 2		6	3	9	0	0	0	0	0	0	12
SFC 1		6	6	2	0	0	0	0	0	0	14
NO INV TOT		5	5	5	5	5	5	DT/DZ (DEG C)/100M			
DT/DZ FOR 5		0	0	0	0	0	0	5= 0.00 TO -0.40			
SAME 4		1	3	2	3	2	1	4=-0.41 TO -0.80			
LAYERS 3		0	2	3	2	3	4	3=-0.81 TO -1.20			
AS INV 2		2	0	0	0	0	0	2=-1.21 TO -1.60			
BASE 1		2	0	0	0	0	0	1=<-1.60			

MONTH: DEC JAN FEB YEAR: 77-78 HANKSVILLE SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE A STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 14 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 HANKSVILLE SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	1.00	0.0	0.0	0.0	0.0	0.0	0.8	1.00
AVG SPEED	0.8	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	1.00	0.0	0.0	0.0	0.0	0.0		1.00

RELATIVE FREQUENCY OF OCCURRENCE OF THE R STABILITY CLASS IS 0.01

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 14 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 HANKSVILLE SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE C STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 14 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 HAVERSVILLE SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.12	0.0	0.0	0.0	0.0	0.0	0.8	0.12
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.18	0.0	0.0	0.0	0.0	0.0	0.5	0.18
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.06	0.0	0.0	0.0	0.0	0.0	2.3	0.06
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.06	0.0	0.0	0.0	0.0	0.0	0.4	0.06
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.06	0.0	0.0	0.0	0.0	0.0	2.0	0.06
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.18	0.0	0.0	0.0	0.0	0.0	1.4	0.18
WNW	0.06	0.0	0.0	0.0	0.0	0.0	0.5	0.06
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.29	0.0	0.0	0.0	0.0	0.0	1.6	0.29
AVG SPEED	1.2	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	1.00	0.0	0.0	0.0	0.0	0.0		1.00

RELATIVE FREQUENCY OF OCCURRENCE OF THE E STABILITY CLASS IS 0.25

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 14 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 HANKSVILLE SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.20	0.0	0.0	0.0	0.0	0.0	2.9	0.20
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.20
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.60	0.0	0.0	0.0	0.0	0.0	1.8	0.60
AVG SPEED	1.8	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	1.00	0.0	0.0	0.0	0.0	0.0		1.00

RELATIVE FREQUENCY OF OCCURRENCE OF THE F STABILITY CLASS IS 0.07

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 14 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 HANKSVILLE SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.01	0.0	0.0	0.0	0.0	0.0	1.0	0.01
NNE	0.12	0.03	0.0	0.0	0.0	0.0	1.9	0.14
NE	0.03	0.0	0.0	0.0	0.0	0.0	1.2	0.03
ENE	0.07	0.0	0.0	0.0	0.0	0.0	0.7	0.07
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.04	0.0	0.0	0.0	0.0	0.0	2.1	0.04
SE	0.01	0.0	0.0	0.0	0.0	0.0	2.9	0.01
SSE	0.03	0.0	0.0	0.0	0.0	0.0	1.5	0.03
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.04	0.0	0.0	0.03	0.01	0.0	7.4	0.09
SW	0.03	0.0	0.0	0.0	0.0	0.0	0.8	0.03
WSW	0.03	0.0	0.0	0.0	0.0	0.0	1.0	0.03
W	0.05	0.01	0.01	0.0	0.0	0.0	3.0	0.09
WNW	0.04	0.0	0.03	0.0	0.0	0.0	3.3	0.07
NW	0.04	0.01	0.0	0.0	0.0	0.0	2.0	0.06
NNW	0.29	0.0	0.0	0.0	0.0	0.0	1.7	0.29
AVG SPEED	1.4	4.1	7.2	11.7	17.0	0.0		0.0
TOTAL	0.86	0.06	0.04	0.03	0.01	0.0		1.00

NORMALIZED FREQUENCY DISTRIBUTION INDEPENDENT OF STABILITY

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 14 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 ROCK SPRINGS ELEV 1905 METERS

KOLZOWITHIS CLASSIFICATION SCHEME FOR INVERSIONS
MODIFIED TO SHOW TOTAL NUMBER INSTEAD OF PERCENT

	INVERSION BASE HEIGHT (M)										
THICKNESS (METERS)	SFC	1- 100	101- 250	251- 500	501- 750	751- 1000	1000- 1500	1501- 2000	2001- 2500	2501- 3000	TOTAL
1 - 100	14	2	2	3	2	2	2	0	0	0	27
101 - 250	10	5	1	2	1	0	1	0	0	0	20
251 - 500	0	2	0	1	0	1	0	0	0	0	8
501 - 750	1	0	2	1	0	0	0	0	0	0	4
751 - 1000	1	1	0	2	0	0	0	0	0	0	4
1001 - 1500	2	1	1	1	1	0	0	0	0	0	6
> 1500	0	0	0	0	0	0	0	0	0	0	0
INV TOTAL	32	11	6	10	4	3	3	0	0	0	69
DT/DZ 5		0	0	1	0	0	0	0	0	0	1
FROM INV 4		5	2	2	2	2	2	0	0	0	15
BASE 3		3	3	5	2	1	1	0	0	0	15
TO 2		0	1	2	0	0	0	0	0	0	3
SFC 1		3	0	0	0	0	0	0	0	0	3
NO INV TOT		8	8	8	8	8	8	DT/DZ (DEG C)/100M			
DT/DZ FOR 5		0	1	0	0	0	0	5= 0.00 TO -0.40			
SAME 4		1	4	3	4	6	6	4=-0.41 TO -0.80			
LAYERS 3		2	3	5	4	2	2	3=-0.81 TO -1.20			
AS INV 2		3	0	0	0	0	0	2=-1.21 TO -1.60			
BASE 1		2	0	0	0	0	0	1=<-1.60			

MONTH: DEC JAN FEB YEAR: 77-78 ROCK SPRINGS SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE A STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 22 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 ROCK SPRINGS SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE H STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 22 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 ROCK SPRINGS SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE C STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 22 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OR TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 ROCK SPRINGS SEC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.02	0.0	0.0	0.0	0.0	0.0	2.0	0.02
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.02	0.0	0.0	0.0	0.0	4.1	0.02
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.02	0.0	0.0	0.0	0.0	3.7	0.02
SSE	0.02	0.0	0.0	0.0	0.0	0.0	1.8	0.02
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.06	0.02	0.09	0.02	0.0	0.0	5.7	0.19
SW	0.0	0.04	0.04	0.0	0.0	0.0	7.3	0.09
WSW	0.0	0.13	0.17	0.26	0.02	0.0	9.7	0.57
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.06	0.0	0.0	0.0	0.0	0.0	1.2	0.06
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	1.7	4.9	7.7	12.7	17.9	0.0		0.0
TOTAL	0.17	0.23	0.30	0.28	0.02	0.0		1.00

RELATIVE FREQUENCY OF OCCURRENCE OF THE D STABILITY CLASS IS 0.77

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 22 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 ROCK SPRINGS SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.10	0.0	0.0	0.0	0.0	0.0	1.7	0.10
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.07	0.0	0.0	0.0	0.0	4.6	0.07
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.07	0.36	0.0	0.0	0.0	0.0	3.7	0.43
SW	0.0	0.10	0.0	0.0	0.0	0.0	4.4	0.14
WSW	0.0	0.07	0.0	0.0	0.0	0.0	3.7	0.07
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.07	0.0	0.0	0.0	0.0	0.0	1.1	0.07
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.07	0.0	0.0	0.0	0.0	0.0	1.7	0.07
AVG SPEED	1.6	4.2	0.0	0.0	0.0	0.0		0.0
TOTAL	0.36	0.60	0.0	0.0	0.0	0.0		1.00

RELATIVE FREQUENCY OF OCCURRENCE OF THE F STABILITY CLASS IS 0.23

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 22 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 ROCK SPRINGS SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 1-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVG SPEED	0.0	0.0	0.0	0.0	0.0	0.0		0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0		0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE F STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 22 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA

MONTH: DEC JAN FEB YEAR: 77-78 ROCK SPRINGS SEC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC) 0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.02	0.0	0.0	0.0	0.0	0.0	2.0	0.02
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.03	0.02	0.0	0.0	0.0	0.0	2.5	0.05
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.02	0.0	0.0	0.0	0.0	3.7	0.02
SSE	0.02	0.02	0.0	0.0	0.0	0.0	3.2	0.03
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.07	0.10	0.07	0.02	0.0	0.0	4.9	0.25
SW	0.0	0.07	0.03	0.0	0.0	0.0	6.4	0.10
WSW	0.0	0.11	0.13	0.20	0.02	0.0	9.5	0.46
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.07	0.0	0.0	0.0	0.0	0.0	1.2	0.07
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.02	0.0	0.0	0.0	0.0	0.0	1.7	0.02
AVG SPEED	1.6	4.6	7.7	12.7	17.9	0.0		0.0
TOTAL	0.21	0.33	0.23	0.21	0.02	0.0		1.00

NORMALIZED FREQUENCY DISTRIBUTION INDEPENDENT OF STABILITY

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 22 SOUNDINGS FROM A SAMPLE OF 83 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA